Attention Deficit Hyperactivity Disorder: Neurological Basis and Treatment Alternatives

Arreed Barabasz and Marianne Barabasz

Recent research indicates a neurological basis for attention deficit disorder, specifically, right frontal lobe dysfunction. Traditional treatments for ADD/ADHD, such as stimulant drugs, behavior modification, and cognitive-behavior therapy have had limited, short-term success and many drawbacks. Neurotherapy (or EEG feedback), which addresses the frontal lobe dysfunction, has shown significant, long-term results, by teaching patients to normalize their brainwave responses to stimuli. When Instantaneous Neuronal Activation Procedure (INAP) is used in adjunct to neurotherapy, treatment time is significantly reduced without losing long-term effects of the therapy. INAP was developed on the basis of research on hypnotic phenomena.

Attention deficit disorder (ADD) and attention deficit hyperactivity disorder (ADHD) are characterized by the inability to self-regulate focused attention. Children with hyperactivity are impulsive and behaviorally disinhibited. The condition is developmentally disabling which, if left uncontrolled, persists into adolescence and adulthood. This biologically based behavioral disability has a pervasive negative impact on a wide range of adaptive functioning. Although under diagnosed in the past, such is not the case today. Diagnoses are on the rise as public awareness increases. "Its ADHD's time in the sun and they are getting it" (Edwards, 1995, P.44).

Neurological Basis and Assessment

A plethora of correlational studies have led to speculations about the role of food additives, dietary sugar (Finegold 1973, 1975), blood lead levels (David, 1974), allergies (Marshall, 1989), smoking and alcohol use during pregnancy (Barkley, 1990), as causal factors in the etiology of ADD/ADHD. At the same time, serious research has been progressing systematically which forms the basis for a neurological understanding of attention deficit disorders. The data from these investigations clearly implicates frontal lobe involvement, providing a substantive rationale for the use of neurotherapy and a new adjunctive technique called Instantaneous Neuronal Activation Procedure (INAP) (Barabasz, 1985, 1993, in press; A. Barabasz & M. Barabasz, 1993b, 1994a, 1994b, in press-a).

Frontal lobe functions are executive in nature and are involved in developing plans and organizing resources. They also are critical in mediating inhibitory behaviors such as controlling motor behavior and inhibiting attentional focus on distractor or irrelevant stimuli. The evidence suggesting right frontal lobe dysfunction as the basis of attention deficit disorders is considerable (Chelune, Ferguson, Koon & Dickey, 1986; Gualteri & Hicks, 1985; Hynd, Semrud-Clikeman, Lorys, Novey & Eliopulos, 1990; Lou, Henriksen, Bruhn, Bomer & Nielsen, 1989; Schaughency & Hynd, 1989; Voeller & Heilman, 1988)

Recent research using advanced neuroimaging morphological procedures has shown that ADD/ADHD children fail to show the normal right-greater-than-left asymmetry in the mass of the frontal lobes (Hynd, Hem, Voeller & Marshall, 1991). Consistent with this finding, computerized quantitative electroencephalographic (EEG) analysis (referred to as "neurometric assessment" in the practice of psychology) shows significantly greater slow wave (theta) activity and significantly less fast wave (beta) activity predominantly in the frontal regions for ADD/ADHD boys (Mann, Lubar, Zimmerman, Miller & Muenchen,